

Listing of Claims

1. (Currently Amended) A system for providing data-triggered workflow management, comprising:

a process definition editing tool to create a process definition of a workflow process using a data-triggered process definition language for generating a process definition, wherein the process definition defines activities that are associated with the workflow process, and wherein the process definition includes an activity specification for each activity associated with the workflow process, wherein the activity specification for each activity includes a schedule rule that specifies one or more conditions under which the activity is initiated for execution based on workflow relevant data, independent of control flow dependencies; and

a data triggered workflow engine to generate a process instance of the workflow process from the process definition and manage the execution of the process instance, wherein upon the occurrence of a predetermined event, the data-triggered workflow engine will evaluate the schedules rules based on the workflow relevant data to initiate one or more activities for execution, whereby execution of an initiated activity is at the option of a workflow participant.

~~comprises a job record specification, an activity specification, and an activity network specification, wherein the activity specification comprises schedule rules for specifying conditions under which activities are scheduled for enactment based on workflow relevant data;~~

~~a storage device for storing the workflow relevant data; and~~

~~a data triggered workflow engine for generating a process instance from a process definition and managing the execution of the process instance, wherein the data triggered workflow engine processes activity attributes and the schedule rules to determine which activities are scheduled for enactment based on the workflow relevant data and to determine a recommended order in which the scheduled activities can be enacted based on the activity specifications and a current execution state of the process instance.~~

2. (Currently Amended) The system of claim 1, wherein the predetermined event includes modification of workflow-relevant data ~~data-triggered workflow engine re-evaluates the schedule rules when the workflow relevant data is modified.~~

3. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises a permitted rule that specifies one or more conditions under which an activity that is not initiated for execution is permitted to be executed at the option of the workflow participant ~~further comprises permitted rules for specifying conditions under which activities are permitted to be enacted.~~

4. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises an expected rules for specifying that specifies one or more conditions under which activities are ~~the activity is~~ expected to be initiated for execution enacted.

5. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises an input specification for listing data ~~in a job record~~ that ~~an~~ the activity can read.

6. (Currently Amended) The system of claim 5, wherein the input specification for each activity further comprises at least one attribute for specifying a manner in which data for an input field of the activity is used.

7. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises an output specification for listing data ~~in a job record~~ that ~~an~~ the activity can produce, modify or overwrite.

8. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises a completion state specification for listing at least one type of outcome for ~~an~~ the activity.

9. (Currently Amended) The system of claim 1, wherein the activity specification for each activity comprises a resources specification for listing at least one resource that is needed to ~~enact an~~ execute the activity.

10. (Currently Amended) The system of claim 9, wherein when the two or more activities are initiated for execution at a given time, the data-triggered workflow engine evaluates ~~utilizes~~ the resources specification of the two or more initiated activities to determine a suggested sequence of executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant ~~to determine an order in which scheduled activities can be enacted.~~

11. (Currently Amended) The system of claim ~~38~~ 4, wherein the one or more relations between activities specified by the activity network specification include influence relations such as Precedes and Precedes Back relations ~~comprises activity ordering relations that are processed by the data triggered workflow engine to determine a preferred order in which to enact scheduled activities.~~

12. (Currently Amended) The system of claim 1, wherein the activity specification for each activity further comprises an auto-routing specification comprising rules for specifying a data item to copy and a location associated with the activity where to send the copied data item.

13. (Original) The system of claim 12, wherein the auto-routing rules comprise one of a mandatory auto-routing rule, a preferred auto-routing rule, and both.

14. (Original) The system of claim 12, further comprising an auto-routing server for scheduling and managing movement of copied data items.

15. (Original) The system of claim 1, wherein the activity specification further comprises an archive specification for specifying data to be archived and an archive location.

16. (Original) The system of claim 15, further comprising an archive server for copying a data item and sending the copied data item to a specified archive location.

17. (Original) The system of claim 16, wherein the data-triggered workflow engine delays completion of the transaction associated with an activity until notification is received from the archive server that a copying process is complete.

18. (Currently Amended) The system of claim 1, wherein the process definition further comprises a state-based schedule rules specification for supporting both simulation of state-based scheduling and responding to ~~unscheduled activities~~ changes to work-flow relevant data by activities which are not initiated for execution.

19. (Currently Amended) The system of claim 18, wherein the state-based schedule rules specification includes ~~each comprise~~ an in-out-consistent predicate and a prefix-consistent predicate.

20. (Currently Amended) A computer-implemented method for executing a data-triggered process, comprising the steps of:

generating a process instance from a process definition which defines activities that are associated with the workflow process, wherein the process definition includes an activity specification for each activity associated with the workflow process, wherein the activity specification for each activity includes a schedule rule that specifies one or more conditions under which the activity is initiated for execution based on workflow relevant data, independent of control flow dependencies; and

upon the occurrence of a predetermined event, evaluating the schedules rules based on the workflow relevant data to initiate one or more activities for execution, whereby execution of an initiated activity is at the option of a workflow participant.

~~determining scheduled activities associated with the process instance using activity specifications having schedule rules that specify conditions under which activities are scheduled for enactment based on workflow relevant data; and~~

~~computing a recommended order in which the scheduled activities can be enacted based on activity specifications and a current execution state of the process instance.~~

21. (Canceled)

22. (Currently Amended) The method of claim 20, wherein the predetermined event includes further comprising the step of recomputing an order in which scheduled activities can be enacted, if necessary, upon a change of state of an enacted ~~executed~~ activity.

23. (Currently Amended) The method of claim 20, wherein the activity specification for each activity includes a permitted rule that specifies one or more conditions under which an activity that is not initiated for execution is permitted to be executed at the option of the workflow participant, the method further comprising the steps of:

determining if an ~~unscheduled~~ activity that is not initiated for execution is permitted to be ~~enacted~~ executed based on the activity specifications of the activity, in response to selection of the activity by the workflow participant; and

executing the selected activity if it is permitted.

~~enacting the unscheduled activity if it is permitted.~~

24. (Currently Amended) The method of claim 20, wherein the activity specification for each activity comprises an expected rule that specifies one or more conditions under which the activity is expected to be initiated for execution, the method further comprising the steps of:

determining if an activity that is not initiated for execution is expected to be initiated for execution ~~enacted~~ during execution of the process instance based on activity specifications; and

preparing for execution ~~enactment~~ of the activity if it is expected to be executed.

25. (Currently Amended) The method of claim 20, further comprising the step of upon finishing an executed ~~enacted~~ activity, generating a message specifying a state of completion of the activity, recording the state of completion ~~in a job record~~ of the activity, and reevaluating schedule rules of ~~subsequent~~ activities, if necessary, based on the state of completion.

26. (Currently Amended) The method of claim 20, wherein the activity specification for each activity comprises a resources specification for listing at least one resource that is needed to execute the activity, the method further comprising:

when two or more activities are initiated for execution at a given time, evaluating the resources specification of the two or more activities that are initiated for execution to determine a suggested sequence of executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant ~~the step of computing an order in which scheduled activities can be enacted comprises using a resources specification of a scheduled activity to determine a priority of the scheduled activity.~~

27. (Currently Amended) The method of claim 20, further comprising the step of automatically routing a data item associated with an activity based on the activity specifications of the activity.

28. (Currently Amended) The method of claim 20, further comprising the step of automatically archiving a data item associated with an activity based on the activity specifications of the activity.

29. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for executing a data-triggered process, the method steps comprising:

generating a process instance from a process definition which defines activities that are associated with the workflow process, wherein the process definition includes an activity specification for each activity associated with the workflow process, wherein the activity specification for each activity includes a schedule rule that specifies one or more conditions under which the activity is initiated for execution based on workflow relevant data, independent of control flow dependencies; and

upon the occurrence of a predetermined event, evaluating the schedules rules based on the workflow relevant data to initiate one or more activities for execution, whereby execution of an initiated activity is at the option of a workflow participant.

~~determining scheduled activities associated with the process instance using activity specifications having schedule rules that specify conditions under which activities are scheduled for enactment based on workflow relevant data; and~~

~~computing a recommended order in which the scheduled activities can be enacted based on activity specifications and a current execution state of the process instance.~~

30. (Canceled)

31. (Currently Amended) The program storage device of claim 29, wherein the predetermined event comprises ~~further comprising instructions for performing the step of recomputing an order in which scheduled activities can be enacted, if necessary, upon a change of state of an~~ executed ~~enacted~~ activity.

32. (Currently Amended) The program storage device of claim 29, wherein the activity specification for each activity includes a permitted rule that specifies one or more conditions under which an activity that is not initiated for execution is permitted to be executed at the option of the workflow participant, and further comprising instructions for performing the steps of:

determining if an ~~unscheduled~~ activity that is not initiated for execution is permitted to be ~~enacted~~ executed based on the activity specifications of the activity, in response to selection of the activity by the workflow participant; and

executing the selected activity if it is permitted.

~~enacting the unscheduled activity if it is permitted.~~

33. (Currently Amended) The program storage method of claim 29, wherein the activity specification for each activity comprises an expected rule that specifies one or more conditions under which the activity is expected to be initiated for execution, further comprising instructions for performing the steps of:

determining if an activity that is not initiated for execution is expected to be initiated for execution ~~enacted~~ during execution of the process instance based on activity specifications; and

preparing for execution ~~enactment~~ of the activity if it is expected to be executed.

34. (Currently Amended) The program storage device of claim 29, further comprising instructions for performing the steps of upon finishing an executed ~~enacted~~ activity, generating a message specifying a state of completion of the activity, recording the state of completion ~~in a~~

~~job record~~ of the activity, and reevaluating schedule rules of ~~subsequent~~ activities, if necessary, based on the state of completion.

35. (Currently Amended) The program storage device of claim 29, the activity specification for each activity comprises a resources specification for listing at least one resource that is needed to execute the activity, and further comprising instructions for:

when two or more activities are initiated for execution at a given time, evaluating the resources specification of the two or more activities that are initiated for execution to determine a suggested sequence of executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant ~~wherein the instructions for performing the step of computing an order in which scheduled activities can be enacted comprise instructions for utilizing a resources specification of a scheduled activity to determine a priority of the scheduled activity.~~

36. (Currently Amended) The program storage device of claim 29, further comprising instructions for performing the step of automatically routing a data item associated with an activity based on the activity specifications of the activity.

37. (Currently Amended) The program storage device of claim 29, further comprising instructions for performing the step of automatically archiving a data item associated with an activity based on the activity specifications of the activity.

38. (New) The system of claim 1, wherein the process definition further comprises an activity network specification comprising one or more relations between activities which are used to determine a suggested sequence of executing two or more activities that are initiated for execution at a given time, and

wherein when two or more activities are initiated for execution at a given time, the data triggered work flow engine will evaluate the one or more relations between the two or more initiated activities based on the execution state of the process instance to determine a suggested sequence for executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant.

39. (New) The method of claim 20, wherein the process definition further comprises an activity network specification comprising one or more relations between activities which are used to determine a suggested sequence of executing two or more activities that are initiated for execution at a given time, the method further comprising the step of:

when two or more activities are initiated for execution at a given time, evaluating the one or more relations between the two or more initiated activities based on the execution state of the process instance to determine a suggested sequence for executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant.

40. (New) The method of claim 39, wherein the one or more relations between activities specified by the activity network specification include influence relations such as Precedes and Precedes Back relations.

41. (New) The program storage device of claim 29, wherein the process definition further comprises an activity network specification comprising one or more relations between activities which are used to determine a suggested sequence of executing two or more activities that are initiated for execution at a given time, the program storage device further comprising instructions for:

when two or more activities are initiated for execution at a given time, evaluating the one or more relations between the two or more initiated activities based on the execution state of the process instance to determine a suggested sequence for executing the two or more initiated activities, whereby an actual sequence of executing the initiated activities is at the option of the workflow participant.

42. (New) The program storage device of claim 41, wherein the one or more relations between activities specified by the activity network specification include influence relations such as Precedes and Precedes Back relations.